

Nomenclature

α	momentum compaction	β_i	betatron functions
η	dispersion function	$\alpha_i, \beta_i, \gamma_i$	Twiss parameters
ν_i	betatron tune	λ_c	critical wavelength
ε_c	critical energy	ρ	dipole bending radius
τ_i	damping time	B	magnetic field
C	circumference	E	energy
σ_ε	energy spread	ε	uncoupled emittance
J_i	partition functions	U_0	radiation loss/turn
H	Courant-Snyder Invariant	N_s	superperiods
P_T	Total Power	ξ_i	chromaticity
χ	emittance coupling	ε_{RF}	RF acceptance
$\sigma_{x,y}$	rms beam size	$\sigma'_{x,y}$	angular spread
n	field index	h	RF harmonic number
K^2	quadrupole strength	N_k	photon flux
λ_U	undulator period	K	undulator parameter

Physical Constants^{Pa1}

Physical Quantity	Symbol	Value	SI Units
Elementary Charge	e	1.6022×10^{-19}	C
Electron Mass	m_e	9.1095×10^{-31}	kg
Proton Mass	m_p	1.6726×10^{-27}	kg
Planck Constant	h	6.6262×10^{-34}	joule sec
Speed of Light	c	2.9979×10^8	meter/sec
Classical Electron Radius	r_e	2.8179×10^{-15}	meter
Fine Structure Constant	α	1/137.04	
Boltzman Constant	k	1.3807×10^{-23}	joule/°K
Permittivity of Free Space	ε_0	8.8542×10^{-12}	farad/m
Permeability of Free Space	μ_0	$4\pi \times 10^{-7}$	henry/m
Impedance of Free Space	Z_0	376.73	ohms

